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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,356	02/28/2002	Michiaki Sakamoto	8004-1003	5588

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EXAMINER

WANG, GEORGE Y

ART UNIT PAPER NUMBER

2871

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

4A

Office Action Summary	Application No.	Applicant(s)	
	10/084,356	SAKAMOTO ET AL.	
	Examiner	Art Unit	
	George Y. Wang	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4-8 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,4-8 and 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/5/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Claims 2, 4-8, and 16-18 in the reply filed on July 7, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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3. Claims 2, 4-8, and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al. (U.S. Patent No. 5,936,688, from hereinafter "Tsuda") in view of Nakai (U.S. Patent No. 6,219,119).

4. Regarding claims 16-17, Tsuda discloses a reflector (fig. 3, ref. 15) for a reflection-type LCD device comprising plural interconnected protrusions (fig. 9d, ref. 72c) of a first height made of organic resin (col. 216, lines 40-41) having depressed areas of a second height less than the first between adjoining ones of the plural protrusions, a first bumpy layer (fig. 9e, ref. 74) covering the protrusions having a bumpiness generated by the protrusions, and a base layer of a reflector on the first layer, where the base layer has a bumpiness corresponding to the bumpiness of the first layer to form a protrusion pattern of a surface of the reflector, the protrusion pattern giving an inclination angle to the surface according to a specified distribution (fig 2a-2e).

However, the reference fails to specifically disclose a reflector with plural interconnected protrusions where each depressed areas has a closed geometric shape and being isolated from others of the depressed areas.

Nakai discloses a reflector as recited above having a bumpy layer corresponding to the bumpiness of the protrusions where the depressed areas (fig. 8, ref. 4) between adjoining protrusions (fig. 8, ref. 1) are closed geometric shapes (fig. 5, ref. 2) defined by virtual lines of a third height and being isolated from others of the depressed areas.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have depressed areas between adjoining protrusions, depressed

area having a geometric shape since one would be motivated to improve the light-condensing capability of the reflector (col. 10, lines 30-32). Ultimately, a wide viewing angle and strong reflection can coexist to produce a quality image (col. 3, lines 57-60).

5. As to claim 2, Tsuda discloses a reflector as recited above where the specific distribution of inclination angle values of the roughened surface has an average value within a range from 2° to 6° (fig 2a-2e).

6. Regarding claims 4-8, Tsuda discloses the reflector as recited above, however, the references fail to specifically disclose depressed areas between adjoining protrusions, depressed area having a closed geometric shape selected from a group consisting of triangle, rectangle, or ellipse, and protrusion dimensions that satisfy $0.5 \leq (D/W) \leq 1.0$, $0.5 \leq (d/L) \leq 0.2$, and $(D/d) \leq 3$ with a maximum value of height.

Nakai discloses reflector as recited above having a bumpy layer corresponding to the bumpiness of the protrusions with depressed areas (fig. 8, ref. 4) between adjoining protrusions (fig. 8, ref. 1), the depressed area having an elliptical and rectangular geometric shape (fig. 4), rectangle, or ellipse, and protrusion dimensions that satisfy $0.5 \leq (D/W) \leq 1.0$, $0.5 \leq (d/L) \leq 0.2$, and $(D/d) \leq 3$ with a maximum value of height (fig. 13; col. 10, lines 10-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have depressed areas between adjoining protrusions, depressed area having a geometric shape selected from a group consisting of rectangle or ellipse,

and protrusion dimensions that satisfy $0.5 \leq (D/W) \leq 1.0$, $0.5 \leq (d/L) \leq 0.2$, and $(D/d) \leq 3$ with a maximum value of height since one would be motivated to improve the light-condensing capability of the reflector (col. 10, lines 30-32). Ultimately, a wide viewing angle and strong reflection can coexist to produce a quality image (col. 3, lines 57-60).

7. As per claim 19, Tsuda discloses a reflector (fig. 3, ref. 15) for a reflection-type LCD device comprising plural interconnected protrusions (fig. 9d, ref. 72c) made of organic resin (col. 216, lines 40-41) having depressed areas between adjoining ones of the plural protrusions, a first bumpy layer (fig. 9e, ref. 74) covering the protrusions having a bumpiness generated by the protrusions, and a base layer of a reflector on the first layer, where the base layer has a bumpiness corresponding to the bumpiness of the first layer to form a protrusion pattern of a surface of the reflector, the protrusion pattern giving an inclination angle to the surface according to a specified distribution (fig 2a-2e).

However, the reference fails to specifically disclose a reflector with plural interconnected protrusions where each depressed areas has a closed geometric shape and being isolated from others of the depressed areas.

Nakai discloses a reflector as recited above having a bumpy layer corresponding to the bumpiness of the protrusions where the depressed areas (fig. 8, ref. 4) between adjoining protrusions (fig. 8, ref. 1) are closed geometric shapes (fig. 5, ref. 2) and being isolated from others of the depressed areas.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have depressed areas between adjoining protrusions, depressed area having a geometric shape since one would be motivated to improve the light-condensing capability of the reflector (col. 10, lines 30-32). Ultimately, a wide viewing angle and strong reflection can coexist to produce a quality image (col. 3, lines 57-60).

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda and Nakai in view of Moon (U.S. Patent No. 6,543,901).

Tsuda discloses the reflector as recited above with a protrusion pattern giving inclination angle (fig 2a-2e) to the surface according to a specific distribution where a first component with an inclination angle value of 0° is 15% or less in area (col. 7, lines 41-45) and a second component with an inclination is 50% or greater in area (col. 6, lines 51-55).

However, the reference fails to specifically disclose a protrusion pattern giving inclination angle to the surface according to a specific distribution where a second component with an inclination value from 2° to 10° .

Moon discloses a reflector having a protrusion pattern giving inclination angle to the surface according to a specific distribution where a second component with an inclination value from 2° to 10° (col. 8, lines 4-13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a reflector for a reflection-type LCD device comprising a second component with an inclination value from 2° to 10° that is 50% or greater in area

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since one would be motivated to prevent the occurrence of interference (col. 8, lines 7-8). This would not only improve light efficiency for obliquely inputted light but also optimizes brightness and display quality (abstract; col. 2, lines 44-55).

Response to Arguments

9. Applicant's arguments filed July 7, 2005 have been fully considered but they are not persuasive.

Applicant amended independent claim 17 to further the depressed areas as "being isolated from others of said depressed areas" and asserts that the cited prior art references fail to teach this new limitation and a closed geometric shape. However, the language, "a closed geometric shape," is broad and pretty much any type of space can form a "geometric shape." Thus, the importance of this shape may rest on its "closed" nature. However, it is not understood how a "closed" shape formed by protrusions would still have a bumpy surface. Moreover, Applicant's amendment to include virtual lines of a third height further obfuscates the already difficult-to-understand claim language. Since Applicant's specification does not go into any further detail as to the meaning of "closed," Examiner could only construe the meaning of "closed geometric shape" as "definite geometric shape" since Applicant offers various definite shapes, such as triangular, rectangular, and elliptical, in the dependent claims. But Applicant's "shapes" are not covered on all sides to make them "closed" shapes whether they are triangular, rectangular, or elliptical. Since the language is contradictory and unfathomable and because independent claims do not rely on any of the

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aforementioned defined shapes, it appears that any geometric shape could meet the limitations of the claim language. Furthermore, even if the closed geometric shapes are interpreted in light of the new limitation that each shape is "isolated from others," it appears that the cited Nakai reference clearly discloses protrusions with depressed areas having a closed geometric shape (fig. 5, ref. 2). While Applicant argues that the shapes of Nakai are "interconnected," nowhere does the meaning of "closed geometric shape" or "isolated from each other" specify that they cannot be interconnected.

Therefore, Examiner holds to the validity of the references used and maintains rejection.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw
September 18, 2005



DUNG T. NGUYEN
PRIMARY EXAMINER